



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,435	10/28/2003	Gururaj Pangal	112-0123US	4461
29855	7590	03/22/2007		
WONG, CABELLO, LUTSCH, RUTHERFORD & BRUCCULERI, L.L.P. 20333 SH 249 SUITE 600 HOUSTON, TX 77070			EXAMINER SUN, SCOTT C	
			ART UNIT	PAPER NUMBER
			2182	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/22/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/695,435

Applicant(s)

PANGAL ET AL.

Examiner

Scott Sun

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/12/2007 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edsall et al (PG Pub #2003/0172149) in view of Testardi et al (PG Pub #2003/0140210).

5. Regarding claim 17, Edsall discloses a network (SAN, figure 1B) comprising:

Art Unit: 2182

at least one host (hosts 144, 146) adapted to be connected to a switched fabric (switched fabric made up of switches 148, 150, 152; inter-switch links 154, 156; paragraphs 39, 40);

at least two storage units (storage devices 132-142) adapted to be connected to a switched fabric (switches 148, 150, 152; inter-switch links 154, 156);

a switched fabric (switches 148, 150, 152; inter-switch links 154, 156) connected to and coupling the at least one host and the at least two storage units (paragraph 39), the switched fabric comprising:

at least one switch (switches 148, 150, 152) for coupling to the at least one host and the at least two storage units; and

a storage processing device (port processing logic in the switches, shown in figure 3A; paragraph 53) coupled to the at least one switch and for coupling to the at least one host and the at least two storage units, where the host and the at least two storage units may be directly connected to the storage processing device or may be coupled to the storage processing device through the switch, the storage device including:

an input/output module (logic elements 302, 304, 306, 320, 322, 324) including processors to receive, operate on, and transmit network traffic (paragraph 53), and

a control module (virtual processor 308) coupled to said input/output module, said input/output module and said control module

Art Unit: 2182

being configured to interactively perform virtualization of a storage unit (paragraph 54).

Edsall does not disclose explicitly data migration between the first and second storage units. However, Testardi discloses a switched fabric (element 20; figure 3; paragraph 64) comprising a storage processing device (distributed virtualization engines 34a-c) including a I/O module (fast paths) and a control module (control paths, paragraph 69) configured to interactively perform data migration (online-migration; paragraph 65, 66; details in figures 23, 24, paragraphs 204-212) between a first (physical volume p1) and a second storage device (physical volume p2). Teachings of Edsall and Testardi are from the same field of storage networks, and in particular using switched fabric to facilitate data operations.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Edsall with teachings of Testardi by implementing the data migration logic and data structures in the switched fabric system of Edsall for the benefit of efficient dispatch of data operations (in the instant case, data migration) to storage devices (Testardi, paragraph 9).

6. Regarding claim 18, Edsall discloses the network of claim 17 and further discloses wherein said processors include a processor with a frame classification module (virtualization intercept switch 306), a virtual target task, and a virtual initiator task (commands to host and storage devices). Examiner notes that Edsall teaches performing storage virtualization with the switched fabric (background, paragraph 45). The virtualization switch communicates with the hosts as a target and communicates

Art Unit: 2182

with the storage devices as an initiator. Accordingly, the commands in the input/output module (elements 302-306) that communicate with the storage devices are virtual initiator tasks; and the commands that communicate with the hosts are virtual target tasks.

7. Regarding claim 19, Edsall discloses the network of claim 17, and further discloses where said input/output module and said control module support a virtualization processor (logic of virtual processor 308 for virtual/physical address mapping) including a virtual target (virtual address of target), a volume manager mapping block (virtual to physical mapping), and a virtual initiator (address of switch; paragraph 54).

8. Regarding claim 20, Edsall discloses the network of claim 19, and further discloses wherein said volume manager mapping block provides virtual block to physical block mappings (paragraph 54).

9. Regarding claim 21, Edsall discloses the network of claim 19, wherein said processors include a processor with a frame classification module, a virtual target task and a virtual initiator task (see rejection for claim 18).

10. Regarding claim 22, Edsall discloses the network of claim 21, wherein said processor utilizes said volume mapping block and said virtual target task to translate received frames from a virtual target to a physical target (paragraph 54).

11. Regarding claim 23, Edsall discloses the network of claim 22, wherein said processor utilizes said virtual initiator task to transmit frames to the physical target and

Art Unit: 2182

receive response frames from the physical target (paragraph 53, 54; also see rejection for claim 18).

12. Regarding claim 24, Edsall disclose the network of claim 23, wherein the virtual target translates to two physical targets (mirroring; paragraph 64) and wherein said processor utilizes said virtual target task to prepare a command frame for the second physical target and said virtual initiator to transmit said command frame to the second physical target (paragraph 54).

13. Claims 1-16 and 25-32 are substantially similar to the above claims. The same rejections are applied.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Sun whose telephone number is (571) 272-2675. The examiner can normally be reached on M-F, 10:30am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2182

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS


KIM HUYNH
SUPERVISORY PATENT EXAMINER

3/19/07


KIM HUYNH
SUPERVISORY PATENT EXAMINER